Detailed Comments on the Draft Report of the Blue Ribbon Commission on America's Nuclear Future

Provided by

The Carlsbad Mayor's Nuclear Task Force
Carlsbad, New Mexico
September 13, 2011

Table of Contents

Introduction

Overarching comment on time scales and social and political stability
The draft BRC report makes reference of the need to isolate nuclear wastes for very long periods of time. Indeed, in Chapter 9 (Regulatory Issues), there is discussion about regulatory compliance timeframes that run the gamut from a few thousand to a million years. It should be noted that any approach to isolating nuclear waste from the accessible environment will be subject to the vagaries of societal changes and social evolution.

Recall that the United States itself is only 235 years old, and, over the course of that time, it has seen enormous social change – even upheaval. This country has dealt with nuclear waste for less than 70 of those 235 years, and there has been much social and political change over the course of those 70 years alone.

To assume any real and enduring stability in government, national will, and societal priorities over any long time frame is to ignore the lessons of even our own country's history. It would behoove this nation to isolate nuclear wastes in a manner that relies as little as possible on society's enduring commitment to securing the wastes in surface structures; instead, **the country should tend toward the use of geologic isolation via boreholes or repositories so that the geology itself can be relied upon to effect the isolation rather than on governmental or private institutions or organizations.**

Technical and Historical Background
In the reviews of the management of government-owned wastes, very little is made of the transportation arrangements that have been set up and run with a great deal of success. In the case of transportation of "things nuclear," no news is indeed good news. The absence of items on the nightly news programs about incidents in which transportation of "things nuclear" has gone wrong, creating public exposures to radiation and massive expenditures for clean-up, speaks to the effectiveness and safety of nuclear material transport.

The report makes far too little of the successes chalked-up by the government's approaches to safely transporting nuclear materials in its possession and therefore misses a chance to build public confidence that future transportation of commercial spent fuel and other nuclear materials could and would be done with equal safety.

The following are explicit comments recommended for additions, changes or positions offered by the City of Carlsbad Mayor's Nuclear Task Force, which is a diverse

committee of thirty citizens concerned about the future of their city and the country. This committee meets weekly, and it is extremely serious and committed to finding a solution to the back-end of the fuel cycle.

1. Separate disposal of government-owned and defense high level waste from commercial waste and address immediately

The United States has an inventory of government-owned and defense high-level waste that has no reprocessing potential. Today's permanent disposal of defense high-level waste could pave the way to close tomorrow's back end of the nuclear fuel cycle. In the interest of national security and public safety, near term requirements for disposal of heat-generating defense waste can be addressed with a disposal demonstration like the one proposed in salt.

As cited in the draft report, "Given the circumstances involving Yucca Mountain and the current lack of a "civilian" repository, and uncertainty regarding the economic value of reprocessing commercial spent fuel, some witnesses have suggested that it may now be more efficient to expedite permanent disposal of defense high-level waste in a defense-only geologic repository." We agree with this statement, and believe that WIPP, as the only operating defense-only geologic repository, should be studied and considered as a preferred site if the science confirms its suitability for this waste.

The country should not defer permanent disposal of DHLW, as it is waste with no potential future value as a fuel, whereas it may be to our advantage to wait on civilian used fuel until the option of reprocessing is better understood. A DHLW repository developed expeditiously would alleviate DOE's defense waste problem, add to DOE's credibility, and possibly pave the way for potential disposal options for civilian waste in the future. Also, given the recommended changes in the BRC Draft Report regarding the funding mechanism and management for repository programs, it may be cleaner to separate the defense and civilian programs. The nation should not delay in finding repository solutions, especially for DHLW.

Government-Owned High-Level Waste and Spent Fuel Have no Intrinsic Value

Government-owned and defense high-level waste being prepared for disposal

- Hanford: 14,500 canisters (Vit Plant cost >$12B and unnecessary for disposal in salt)
- Idaho National Lab: 1292 canisters (steam reforming plant completed)
- Savannah River Site: 5978 vitrified canisters (~2000 already filled)
- West Valley: 300 vitrified canisters (existing)

Government-owned fuel already packaged for disposal

- Navy SNF: 300 containers
- DOE SNF: 3921 containers (highly variable packaging configuration)

2. Take advantage of existing DOE infrastructure and resources to expeditiously and cost effectively complete R&D on geologic media

A BRC key recommendation is to promptly develop, as expeditiously as possible, one or more permanent deep geological facilities for the safe disposal of spent fuel and high-level nuclear waste. As a near term action, the BRC recommends that the DOE should keep a repository program moving forward through valuable, non-site specific activities, including R&D on geological media.

We agree with these BRC recommendations. In order to support these recommendations, the final report needs to recommend a robust investigation program be engaged by the Department of Energy to develop the potential of salt for use in disposal of heat-generating high-level wastes and to use WIPP resources and infrastructure to accomplish this as expeditiously and cheaply as possible. We understand that it is not the BRC's charter to recommend a site or a medium of choice, but the nation should be taking advantage of a unique opportunity to conduct generic research on a key disposal media (salt) based on this extraordinary opportunity of facility availability, access, available technical expertise, and resources.

Order of magnitude cost, and significant schedule savings, will be realized by conducting the field test at WIPP, the nation's only operating geologic repository. These proposed field tests can begin, and be completed, years sooner and tens of millions of dollars cheaper than at a location without underground access, support infrastructure, and resident skilled labor and scientific resources.

If one adds up all the potential savings from following a salt-centric path for establishing the first interim storage site and a first repository, the resources saved over waiting for all recommendations to be codified into law and starting siting from scratch, or going elsewhere, could approach $75 billion, estimated as follows:

- ~$15 B saved in stopping NWPA contract penalties in a few years rather than in 20 or more years
- ~$10 B saved in avoiding the characterizing of a new site, away from WIPP, even if in salt
- ~$16 B saved in avoiding the use of rare metals in engineered barriers designed to resist corrosion and water in an oxidizing environment
- ~$3 B saved in erecting a new infrastructure rather than expanding an existing one
- ~$5 B saved in avoiding the costs of delays resulting from legal challenges by a state opposed to the siting of these facilities
- ~$25 B saved in avoiding the operation of the complicated waste vitrification process at Hanford, applying simpler processes to assure a solid waste form that can be transported and handled safely

- ~$10 B saved avoiding the permitting and construction of secure longer-term storage facilities for vitrified wastes awaiting a repository at federal sites in states currently suing to challenge the administration's withdrawal of the Yucca Mountain license application

3. Acknowledge community acceptance in SE New Mexico for testing of salt for heat-generating high-level wastes and discussions on WIPP expansion

The BRC draft report stresses the need for community acceptance and a consent-based approach in consideration of disposal options. At the January meetings, the BRC heard from the Governor of New Mexico, the State Senate by proclamation, elected representatives of both Eddy and Lea Counties, and the elected leaders of Carlsbad. The unique message was that if the recommendations concerning waste disposal are based on the very best possible scientific data, the State of New Mexico would be willing to engage in such dialogues.

SE New Mexico has showed the country and the world a model for successfully siting a nuclear waste facility that is protective of its workers, the public and the environment. The region and state are willing and able to assist the commission in determining America's nuclear future. All the ingredients for success are in SE New Mexico: a supportive community, miles of salt, an experienced workforce, infrastructure and more.

The Carlsbad leadership feels an opportunity is being missed by the BRC not giving the nation some hope for fast action on a first interim storage facility and deep geologic repository. While the draft report is clear that “prompt” action is recommended, it also laments that any new siting process may take considerable time. We disagree and believe the BRC final report should indicate that “prompt” action can actually be achieved. It is recommended that another text-box be added with an example of what may be possible in southern New Mexico, based on input received from State, regional and local officials during the Commission’s public meeting in Carlsbad in January.

4. Clarify storage and transport so all know the path forward

The draft report does an excellent job of pointing out the advantages of Interim Storage and its need to be part of an integrated strategy. It is certainly a highlight of the report in that it is the basis for significantly reducing risk.

The recent earthquake in Virginia of magnitude 5.8 where two Dominion reactors are sited, the fire adjacent to Los Alamos National Laboratory, Hurricane Irene on the east coast, tornados and other flooding brings into laser focus, once again, that to reduce the risk of potentially high consequence events, whether biologic, chemical or radiologic, are best mitigated by isolation of the materials in robust containers in remote areas or in a geologic repository.

However, it has become quite clear to the potential host communities in SE New Mexico who are aggressively pursuing such an Interim Storage Facility the report could facilitate the process by:

1. Recognizing that a private company could establish an ISF without being impacted by the 1987 NWPA which prohibits an MRS being established prior to Yucca being licensed.
2. Recommending a process be established where local communities and a state willing to host an ISF could negotiate a lease fee from DOE for storage space at the ISF without the host going through a bid process.
3. Recommending a formal process for a state and its communities willing to host an ISF to negotiate incentives that are acceptable to all parties and are within some reason.
4. Recommending the term to be considered for Interim Storage be a period of time related to health and safety standards, such as, NRC's dry cask storage life rather than some arbitrary number like 100 or 120 years which leaves the public wondering about cask integrity.
5. A recommendation as to what happens at the end of that period of time if a repository is not open; a significant ongoing fine, paying for repackaging of material, removal of material to another site, etc. This will be the pivotal issue in every debate in every state which is pointed out in the report, and, that is, a state becoming a de facto repository, but no recommendations.
6. Pointing out suggested state oversight possibilities and limitations even though the report is clear about a consent-based approach. The licensing

vehicle is NRC which requires the NEPA process as well as providing the technical evaluation expertise which is absent in the vast majority states. With WIPP, RCRA constituents represent 1/10,000th of the risk but have resulted in virtually 90% of the waste characterization costs. Threshold questions should be answered, such as, how does the state intervene, what is the communication process with the state, what is the authority of the state absent technical expertise, what basic reporting should occur, what agency of the state is to receive information, what oversight authority should a state have, should primacy be granted to a state for oversight? These are sticky questions that all states will ask.

7. While it is recognized a restacking pool or an emergency pool for evaluating containers and fuel may be necessary, reconsidering the prospect of wet storage at a central ISF, which if anticipated as a requirement of an ISF, will most likely complicate the consideration for becoming a host to an ISF by a state in contrast to a dry cask facility which is generally viewed as totally benign. We should walk before run – wet storage can be added with affirmed operational confidence later.
8. Recommending one way or another whether "Hardened Storage" will or will not be required of an ISF is extremely important. You give both sides of the argument with no conclusion. This is the kind of argument that will stop a state or private company from going forward because of the uncertainty of a facility costs that would be affected in a dramatic way. The BRC should make a recommendation.
9. Potentially suggesting that a regional authority be granted to those affected populations within a specific geographic area designated as the "risk catchment area" as opposed to the idea that states are the final decision maker. In many instances it may be a combination of states that are actually affected directly rather than distant communities within a state that have little potential of being affected, but always seem to offer their unwanted opinion.
10. An alternative to a regional authority may be to use the idea of a "Legislative Review Act" where a support resolution placed on the floor of each legislative body in a state that would require a super-majority (2/3's) to vote against or effectively veto the resolution. The resolution should not be subject to committee hearings which can be manipulated by those in power.

Transportation issues could be facilitated by:

11. The report misses an opportunity to highlight the success enjoyed by WIPP in transporting TRU wastes by truck from the generator sites and to the WIPP site itself. Almost 12 million miles of safe transportation operations without a

release of radio-active material have been accumulated to date. It stands to reason that the WIPP example should be instructive for future nuclear waste management and transportation systems, and yet the report barely mentions the WIPP example. More should be made of the WIPP truck transportation experience and how a similar system applicable to rail transportation systems could be used for safely shipping HLW without a radio-active release.

12. In the same section, the report fails to acknowledge that public perceptions of risk associated with transportation of hazardous materials of any kind – including nuclear materials – tend to rise markedly if they are viewed as being imposed on a given community. Members of the public will often elect to take on a great deal of risk in their daily lives, more than any real risk that may arise out of transportation of nuclear materials through their community. When government imposes risk on a community by routing shipments of hazardous materials through that community, people object. Again, WIPP has managed through a variety of means to deal successfully with these public perceptions of imposed vs. voluntary risk, and has bolstered public acceptance of that risk with extreme attention to safety of nuclear waste transport. The report should acknowledge this experience and should recommend that lessons from the WIPP experience should be transferred to future waste transportation systems and approaches.
13. Explaining examples of years of transport of used Navy fuel from the east coast to Idaho without incident, and other used fuel transport as well as highly radioactive materials across the country for many many years.
14. Explaining the Federal Rail Authority requirements for rail transport and make a careful explanation as to how Class I rail carriers coordinate the movement of Category VII materials across the country between themselves. As well as, explaining how HLW or UNF will be transported from its source through a short haul rail to the Class I rail line and then to a short haul rail to its destination ISF or repository. Class I carriers have been required to have coordinated plans for years.
15. The report misses another opportunity to focus on international transportation of nuclear materials. Extensive and geographically extended networks exist for transportation of nuclear materials – particularly for re-processing (e.g., in France) – and such transportation is done in a manner that keeps the materials being transported safe and secure. The report should recommend study of the approaches being used for international transportation and the application of lessons learned to transportation of nuclear materials within the boundaries of the U.S.

5. Establish a solution-oriented organization for waste management program

This is now a very mature concept with legislation that has previously been proposed, but not yet passed. This concept of a new Federal Corporation that is given its mission by Congress to resolve the issues associated with the back-end of the fuel cycle is a design that has been used before and has worked very well.

Establishing a solution oriented organization with its own revenue stream, funded by the rate payer, that is free from the contentious funding and political maneuvering by Congress is critical to fulfill the fuel cycle challenges we face. The Commission has done an outstanding job of explaining the recommendation and the process whereby it would be instituted. The Congressional Review Act process is a good one because it provides for veto only by Congress of new missions and avoids the need to pass new legislation which reinitiates the quagmire the Fed Corp is attempting to avoid. Additional suggestions might be that:

1. Reports from the Fed Corp under local C & C agreements should be sent to states and local CABs impacted by its activities.
2. A word of caution is advised regarding use of FERC as the arbiter of whether or not to change the Waste Fund fee. FERC is low cost oriented, and generally across the country, utilities do little or no R & D resulting in FERC not being able to evaluate the value of the R&D. Also, some states are regulated and others are non-regulated which may make fee changes difficult and implications of introducing an additional fee in a non-regulated state should be investigated.

6. Fund the waste management program

The Commission does an excellent job of explaining the Nuclear Waste Fund, the fee, its purpose, the political pitfalls of Congressional appropriations, GRH, BEA, and PAYGO, which have all made the fund dysfunctional and inaccessible. It is noteworthy to point out from the report that the U.S. is the only country of all those that collect fees that appropriates those fees through a legislative process. The following suggestions may be helpful:

1. The administrative approach recommended to avoid the GRH and PAYGO rules will still result in a deficit revenue source to the budget that in today's environment must be addressed. Perhaps a process of transferring an incremental amount of the annual receipts in an ever increasing amount until the complete $750 million is transferred annually into the Fed Corp or into a real escrow account, until the Fed Corp is established, may be more acceptable.
2. It is difficult to believe that the $25 billion corpus will ever be transferred, but perhaps realistically it could provide collateral for borrowing by the Fed Corp to accomplish funding for large items of expenditure which would be reimbursed by the annual NWF over the loan period.
3. Also, capturing the presumed $1.2 billion in interest annually earned by the corpus into the Fed Corp rather than the treasury would, combined with NWF fee, amount to nearly $2 billion annually.
4. The Congress must be convinced that the settlements being paid to the utilities from the Settlement Fund is real money and affects the balance in the treasury. Resolving the waste storage problem will allow DOE to take possession of the SNF and stops the settlement claims, which is an estimated $500 million per year by 2020.

7. Set standards and prove they are met to achieve confidence by all

The report describes succinctly the roles intended to be played by the EPA (standard setting) and the NRC (requirements and criteria setting to fulfill those standards) in the current nuclear facility regulatory environment. It goes on to mention many of the other institutions that become involved in various aspects of nuclear waste management in this country. While it recommends that roles be clarified and the boundaries and interfaces be made more explicit, it essentially suggests that we leave well enough alone in terms of the nuclear regulatory system – perhaps in pursuit of stability in the nuclear waste management regulatory framework, as pointed out by comments following.

1. Perhaps the most important recommendation for the BRC to make is that the regulatory environment be stable. This will facilitate both Interim Storage of used fuel and disposal of nuclear waste. The experience at WIPP was that it was not until the DOE and New Mexico reached agreement on what standards to follow that progress toward demonstrating compliance was achieved. A stable regulatory environment allows used fuel and waste generators to plan for the future disposition of waste.

2. The two agencies with authority to regulate radioactive waste disposal are NRC and DOE—not the EPA. The report goes on to correctly state that EPA's role is to develop generally applicable health-based standards for protection of human health and the environment; but it is the NRC and DOE that provide the rules regarding how, when, where, and how much. These agencies then follow this up with inspections and enforcement actions to assure the regulations are properly implemented.

3. The point should be underscored that science-based decision-making is necessary. However, it is premised on the belief that arriving at a repository decision and implementing it is still a long way off. Perhaps this implies we need better decision-making processes instead of imposing layers and layers of requirements on storage facilities because the length of storage is well beyond what we have experienced in the past.

4. The regulatory chapter grapples with several regulatory “issues”. These will have to be resolved collaboratively; however, some hierarchy of “opinion” needs to be developed so decision-makers can properly weigh what they hear.

5. The BRC has identified the most pressing issues.

6. EPA should not have “implementation” authority—only standards setting authority. DOE and NRC are the agencies with the expertise for managing radioactive waste.

7. Under the RCRA program, mined geologic repositories are considered miscellaneous units. These have facility specific environmental performance standards as opposed to specific technical standards. This allows negotiation between the applicant and the regulator regarding how the environmental performance standards are met for the specific facility. A similar approach should be advocated instead of a one-size fits all approach to repositories.

8. The report misses an opportunity to explicitly address the means by which uncertainty should be dealt with. At both WIPP and Yucca Mountain, the performance assessment approaches used in these repository programs included formal, mathematical rubrics for dealing with uncertainty. Perhaps these approaches impressed the BRC enough that it went without saying that these approaches should simply be carried forward in any future, enlightened standard setting for nuclear waste disposal facilities, but it would have been good for the Commission to be more explicit about that. While the Commission acknowledges that whatever standards are set in the future should be scientifically reasonable, there will be no escaping regulator and stakeholder concerns about uncertainty, and the Commission should be more explicit in its recommendations about how this important topic is dealt with in the future.

9. Removing the confusion with regard to waste classification is a good move. The new system should consider risk as the basis for classification with a common method to define the risk.

8. Recognize challenges of international issues

The report explores both realities and opportunities on the international stage with regard to nuclear waste management. It focuses to a large degree on the possibilities that may exist for international cooperation in the construction and operation of secure waste storage and disposal facilities. While there may indeed be short-term advantages for isolating nuclear waste, both from inappropriate uses (e.g., terrorist acts) and from environmental insult, long-term international collaboration is problematic, particularly on time scales pertinent to nuclear isotope decay.

The comment made at the beginning of this set, having to do with the inappropriateness of making assumptions about the longevity and stability of government and society in the U.S., is one that applies even more dramatically to international agreements, and to governmental and social evolution in other nations. Things change even more rapidly in those realms than they do within the U.S. That is not to say that all efforts to create collaboration and cooperation across national boundaries for securing nuclear waste and the by-products of nuclear power generation should be ignored. This is to say, however, that we should expect any such collaboration and cooperation to be ephemeral, and to require constant attention and re-construction.

The report does not highlight the advantages to the U.S. that may come from a different set of international engagements – namely scientific and technical collaborations in repository sciences. These collaborations can have (and have had in the past) significant multiplier effects in terms of cost savings associated with the scientific investigations that governments fund to underpin their nuclear waste repository programs. The report misses an opportunity by not making more of the advantages of international collaboration on this front.